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MUNICIPAL INFRASTRUCTURE AND IDP HOUSING REHABILITATION PROJECT

GAP ANALYSIS IN GMIP CONSTRUCTION MANAGEMENT PRACTICES

**CONTRACT: AID-EDH-I-00-08-00027-00, TASK ORDER: AID-114-TO-
11-00002**

15 April 2012; Revised 14 May 2012; Revised 19 May 2012; Revised 25 May 2012

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Prepared by:

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25 May 2012

Mr. Bradley Carr
Water Irrigation and Infrastructure Advisor
Office of Economic Growth
US Agency for International Development
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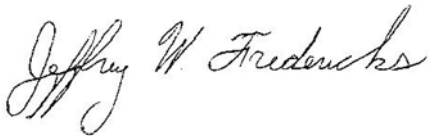
Re: Gap Analysis in GMIP Construction Management (CM) Practices

Dear Mr. Carr:

This report is being submitted to you in accordance with the requirements of task order no. AID-114-TO-11-00002 of contract AID-EDH-I-00-08-00027-00. It provides Tetra Tech's Gap Analysis in GMIP Construction Management (CM) Practices prepared by Michael F. McGovern, PE, for the Municipal Infrastructure and IDP Housing Rehabilitation Project.

We look forward to your review and welcome your comments and suggestions.

Very truly yours,



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Report

Gap Analysis in GMIP Construction Management (CM) Practices

EXECUTIVE SUMMARY

Under the USAID funded GMIP, the Georgia Municipal Development Fund (MDF), Tetra Tech (Tt) and the future Construction Contractors each and together have a role to play in GMIP subproject construction management. This report presents and discusses the findings of an examination into the roles, responsibilities and authorities of each given MDF and Tt USAID contract conditions, MDF's operation manual, the GMIP current list of Sub-projects, and interviews with MDF, Tt and construction Contractor Staff. It compares these findings with 15 key elements in a known and established quality based construction management system and outlines measures that are needed to promote improved GMIP construction management and follow on desired assured cost effectiveness in completed GMIP construction.

The study's major findings are as follows:

1. While perhaps 40 percent of its staff members are trained engineers, MDF is structured as a procurement organization. Its staff is required to procure and monitor more than 55 contracts currently estimated at USD 110 million. Although **MDF has strong capabilities in project preparation, it is limited in its capacity to prepare and review actual designs and provide the type of on-site construction management supervision required by USAID.** In many cases MDF uses outside consultants and contractors to carry out this work. MDF seems to lack an internal engineering practice area. The availability of detailed engineering policies, guidelines, specifications, and standards typically found in Government infrastructure engineering organizations are not available with MDF. Even though MDF has an Operations Manual and a Road Design Manual, they were developed for other projects. By themselves they are insufficient to implement the CM (Construction Management) and QA/QC needed under the USAID program. Although the number of observations during the course of this investigation was limited, the finished MDF infrastructure work quality observed will not meet the expectations required under the USAID program without adjustment. This was confirmed from examining the quality of two MDF completed projects and one under construction.
2. The Chief issues or gaps in MDF infrastructure implementation are no or insufficient **full time on-site inspection, a lack of a written construction management guideline and/or QA/QC Plan** – no generally industry acceptable CM procedures and/or processes, a lack of organization and perhaps motivation. To provide GMIP Subproject CM properly with full time on-site inspectors, MDF will need additional staffing, vehicle, IT, and safety and inspection equipment resources. MDF also seems to lack any safety and environmental compliance capability or they simply aren't enforcing their own plans on site.
3. **MDF Construction Contractors seem capable but again lack organization and CM written guidelines, QA/QC Plans, Safety Plans, and Environmental Compliance Plans.** It is believed that local MDF Georgian Contractors will respond positively to tighter direction if exposed to it.

4. Tetra Tech is doing a good job of working in close and gaining the trust of MDF and Construction Contractors thus far but construction has yet to start. **Tetra Tech perhaps needs two additional project engineers, more English language translation capability, a reports writer, two additional vehicles for when construction activities pick up, and the services one additional LTTA expatriate construction engineer.** Tetra Tech also needs to gear up for the transition from managing MDF preliminary GMIP program activities to helping MDF manage GMIP construction activities. This includes finalizing their own Safety Plan, and QA/QC Plan, and helping to motivate MDF to change and improve their project implementation management so that finished GMIP construction quality is acceptable to USAID and cost effective.

Even though it would appear that GMIP is now slightly behind schedule, overall, the project is moving forward. All these issues and potential solutions are being openly discussed with and by MDF and Tetra Tech. Managers and staff in both organizations know what is needed to be done. The major recommendations made in this report to bridge CM and QA/QC gaps include:

1. **Effective, full time, daily On-Site Inspection is required on all the work. MDF should provide the estimated 34 inspectors.** MDF has said they will provide them but it is unknown if they will or can do so effectively and professionally. It is recommended that their performance in providing these services be observed over a four to six week period on the first two GMIP Contracts to make this determination. Tetra Tech should continue working closely with MDF to motivate them to discharge these responsibilities professionally. It is believed that Tetra Tech could succeed in this if they can help to overcome or ameliorate any internal resistance to change from the top down within MDF. If at the end of this time, Tetra Tech determines MDF cannot or will not provide the required level of professional inspection and CM practices needed, the work should be stopped and these services need to then be provided by Georgian consultant engineering firms through MDF subcontracts but working more closely with Tetra Tech.
2. **There is a need for a GMIP CM Guideline and QA/QC Plan that both MDF and Tetra Tech use to manage GMIP construction projects. This is in final preparation now.**
3. **Tetra Tech needs to continue working closely with MDF** to motivate them to perform their PM and CM duties in a professional manner in accordance with generally accepted industry standards
4. **Construction Contractors will require motivation and assistance in raising their level of organization and professionalism** in their own construction management and QC processes during construction. This needs to also be provided by Tetra Tech staff however through and in deference to the MDF construction contracts.
5. **Tetra Tech needs to consider adding additional engineering, English language, and reports writing capability** that may be needed for it to manage its own CM duties and overall GMIP QA/QC responsibilities once construction starts. This also includes giving some consideration to adding another expatriate Construction Engineer.

Attachment 4 includes a discussion and suggestions for USAID, MDF, and Tt for follow up to the recommendations made in this report.

INTRODUCTION AND EXAMINATION

The scope of work (SOW) for this assignment calls for the delivery of a “Gap Analysis” of the Georgia Municipal Development Fund (MDF) existing Construction Management (CM)

practices compared to what is necessary in industry generally accepted professional practice. It also requests identification of what is required to fill that perceived “gap.” After discussions with Tetra Tech (Tt) and USAID staff it was agreed that as the GMIP construction management responsibilities extend to Tetra Tech (Tt) and to the Construction Contractors as well, it would be productive to examine the issue of any “gaps” in overall GMIP CM by including Tt and the Construction Contractors CM practices and capabilities in this exercise as well. So, this analysis covers MDF, Tt and the Construction Contractors

By definition this type of analysis requires an examination of an existing set of an organization’s Construction Management (CM) practices and processes and then a comparison of findings to some industry generally acceptable set of standard CM practices and processes. The difference between the two can be called or referred to as “the gap.” Once such a “gap” is identified and defined, a set of corrective actions can be proposed or suggested that allows the “gap to be bridged.” Assuming the suggestions are acted upon so as to provide a more acceptable level of CM practices, this would result to the largest extent possible that proper project construction implementation will take place leading to successfully completed cost effective infrastructure that serves for an acceptable service life.

The definition of a program of effective Construction Management practices must also take into account the size and type of the overall construction program and the size and types of the individual contracts not to mention an understanding of those who need to manage and implement it. And in this case also it must include actions/activities that respond to USAID – MDF Implementation Letter procurement requirements.

Therefore this “gap analysis” consists of:

1. Adoption of a standard¹;
2. An examination of the existing processes and procedures that are used by the Georgia Municipal Development Fund (MDF) in existing operations and sub-project construction management (CM) activities and precedent activities that inform project quantities and cost estimates
3. An examination of the MDF-USAID GMIP Implementation Letters and the Tetra Tech – USAID Contract SOW;
4. An examination of Tetra Tech and Georgian Construction Contractor current CM practices and capabilities as they exist today in light of the list of currently planned GMIP Sub-projects;
5. Defining a description of an identified process / procedure issue in MDF, Tt, and/or Construction Contractor CM practices or capabilities as compared to other acceptable agency practices; and
6. Presenting a brief statement of what is needed to address the “gap” or to correct an issue so as to strengthen GMIP overall subproject construction management and overall subproject cost effectiveness.

The examination was carried out using 15 derived elements² to define what quality assurance and control should be in GMIP construction management processes.

¹ Rick Carter, Dr. Osama Tomeh, Georges Darido, Donald Schneck and Frank Waesche III, Quality Assurance and Quality Control Guidelines, U.S. Department of Transportation, Federal Transit Administration (FTA), 400 Seventh Street, S.W. Washington, DC 20590, FTA-IT-90-5001-02.1, February 2002

²“The fifteen elements were originally adapted from the 1987 version of the American National Standards for Quality Systems (ANSI/ASQC Q90 - Q94). The International Standards for Quality Systems (ISO 9000 - ISO 9004) were almost identical to the ANSI standards,” *FTA Guidelines*. See footnote 1

1. Management Responsibility
2. Documented Construction Management Plan and Quality Management System
3. Design Activity Control
4. Document Control
5. Planned and Transparent Procurement
6. Construction Planning, Communications and Coordination
7. Construction Scheduling and Control
8. Construction Material and Process Acceptance
9. Observation, Inspection, Testing, Measurement, and Cost Control
10. Construction Reporting
11. Nonconformance Reporting and Corrective Action Plan
12. Safety Plan
13. Quality Audits
14. Completed Work Handover, Defects & Liability Period Management, and Close-out System
15. Training Plan

Each of the elements refers to CM procedures and processes including their planning, implementation and verification as well as QA / QC activities. Each of the 15 elements is briefly defined for GMIP purposes in Column c of the Table presented in **Attachment 1**, the GMIP Construction Management Gap Analysis.

Attachment 1 also presents the examination results for MDF, Tt and potential GMIP Georgian Construction Contractors. The six columns (d through i) present the “gaps” and the suggested action to “bridge the gap” for each of the three GMIP entities. This “gap” information is from examining available reports, websites, and other written material as well as field trips, interviews with MDF and Tt management, engineers and staff and some discussions with Georgian Construction Contractors.

Finally, at this time, the first two GMIP Subprojects have been tendered and the lowest evaluated responsive qualified bidder has been identified for each. Both of these Subprojects have been let under a modified *Design – Build* approach to project implementation. USAID, MDF and Tetra Tech are discussing and planning on using a mix of additional *Design – Build* and *Design – Bid – Build* contracts to complete GMIP work. It is not clear at this time which sub-projects would be implemented under which modality. This does not greatly affect this “Gap Analysis” examination or its findings. The need to provide adequate design notes, drawings and specifications remains the same whether that step is part of the planning and design phase managed by the Owner (MDF) or the Construction Contractor.

USAID – MDF IMPLEMENTATION LETTERS AND OPERATIONS MANUAL, USAID TETRA TECH CONTRACT SOW AND DISCUSSIONS WITH GEORGIAN CONSTRUCTION CONTRACTORS

The USAID – MDF Implementation Letters and the USAID – Tetra Tech Contract SOW were examined to determine how they impact GMIP construction management and define roles and responsibilities. The MDF Implementation Letters includes both expected and standard USAID agreement provisions that define the subproject categories to be funded under GMIP. The Implementation Letters also include funding information, schedule information, conditions for funding, and directions for payment. Key provisions that impact GMIP Subproject Construction Management include:

1. **USAID Approval of Contracting Steps:** Basically, the Implementation Letters allow for existing MDF procurement practices to be followed along with a nine step USAID approval process. These nine steps need to be closely monitored to ensure compliance with the Implementation Letters. Further the Procurement files for each Subproject should include documentation that demonstrates that each step includes written USAID approvals / permissions to proceed.
2. **Monitoring and Reporting:** Coherent and regular reporting on GMIP activities is crucial especially as subproject construction activities come online. While the Implementation Letters call for a semi-annual and annual report, monthly reports on each subproject once construction begins are needed and MDF should produce them from Contractor reports. Construction projects of this magnitude need monthly review of physical, financial and schedule progress.
3. **Engineering and Oversight Task Order:** This clause formally introduces the Tetra Tech contract to MDF and establishes Tetra Tech as a supplement to USAID Georgia in monitoring and oversight. It broadly lists Tetra Tech's oversight roles and responsibilities from planning through subproject handover with specific mention of design and construction practices.
4. **Audit:** Several notes are included in the Implementation Letters and their Annexes regarding MDF Audit responsibilities. For CM purposes these include ensuring an orderly and organized handover effort for each Subproject activity. Formal handover procedures are needed for not only hand over but also contract close out. While these exist within MDF today, additional formats that meet USAID requirements might be helpful.

MDF also has an Operations Manual (OM) that can be found on their website (<http://www.mdf.org.ge/eng/index.php>). The OM is kept up to date with its latest revision dated 17 February 2012. The OM does include a notice on page one that states,

"Any provisions of this 'Operations Manual' apply exclusively to the Regional Development Project (RDP)."

The procedures outlined in the OM are those used in MDF GMIP implementation. The OM goes on further to note that the MDF is an organization,

"...whose purpose is to mobilize financial resources from donors including international and Georgian financial institutions, donor agencies, countries, economic organizations, as well as the Government of Georgia and local self-government units, and to make them available for investments in local infrastructure and services, while simultaneously helping local self-government units to strengthen their institutional and financial capacity."

The OM is sophisticated and comprehensive and discusses project identification, selection, study, implementation, monitoring and close out. It does not however include any reference at all to engineering functions in feasibility studies, cost estimating, design studies, design standards, the development of drawings, specifications, engineer's cost estimates for bid analysis, engineering input to bid documents or the bid process, construction management, and quality assurance / quality control in any of these functions.

The MDF OM is missing any reference to internal organized engineering input in the definition of procurement, implementation and quality control of infrastructure projects. Its main function is the financing, planning, and implementation of infrastructure projects.

A field trip to one MDF building rehabilitation project in Kutaisi on 15 March 2012, illustrated these issues with the missing engineering protocols and procedures in construction management. Basic written and best practice construction management procedures are needed in MDF GMIP project construction management along with quality assurance / quality control measures as well.

The wording in the GMIP Implementation Letters clearly calls for MDF to carry out organized CM activities with review and assistance as needed by Tetra Tech on behalf of USAID. THE MDF OM does not include any CM procedures. For MDF, **Attachment 1** includes descriptions of expanded and/or new CM activities many of which relate to the four Implementation Letter clauses above and others required as the Operation Manual does not include them.

The Tetra Tech contract SOW Section C, pages 3-11 clearly state in detail that the Tetra Tech GMIP team shall work on behalf of USAID and also assist MDF in all phases and activities of GMIP from subproject identification, selection, design, procurement and construction management. Section C.4.F, pages 10 and 11, list specific items for Tetra Tech to check on behalf of USAID for all subprojects. It is recommended that these items be included in checklists as discussed in **Attachment 1**. Further, **Attachment 1** includes other suggestions and actions that Tetra Tech should consider to improve its overall role GMIP CM.

In depth discussions were held with MDF Construction Contractors Mshenebeli-80, Ltd. and IN-SI, Ltd. Both Contractors work regularly for MDF. From these discussions it became clear that their construction management capabilities were quite basic and did not extend to the level of coordination, control, reporting, and documentation that should be required under GMIP. In both cases however, both Contractors understood what was being asked and stated their willingness to learn and to also add / contract resources to comply with GMIP Construction Contractor requirements. This was encouraging and in fact, Mshenebeli-80 indeed has hired staff to manage and produce quality control, safety and environmental compliance plans for the work they envision implementing under GMIP.

RESOURCES AND ACTIONS NEEDED TO BRIDGE GAPS

The “Gap Analysis” points to several needs and actions. These major needs are:

1. Additional qualified people to provide full time on-site inspection;
2. Resources to support them; and
3. New written CM procedures for MDF and Tt.

These are discussed and described in the following enumerated sections. New and/or revised actions are also required. These actions by MDF and Tt need to be employed during GMIP implementation in order to improve engineering practices and to ensure quality in design and construction. Once new staff and new procedures are in place, there will need to be commitment to follow through with the new procedures. This will be especially true with MDF.

1. **Additional MDF GMIP Human Resources – 34 On-Site Inspectors:** GMIP construction needs daily on-site full-time inspection –for some contracts this will

mean one inspector³ per contract, for others it will mean several. An exercise (see **Attachment 2**) carried out for all currently identified GMIP construction valued at \$40.6 million suggests that 34 inspectors would be sufficient to carry out his function⁴. It is estimated here that perhaps five or six per month will need to be added starting in May / June 2012 when construction begins. Today, daily on-site inspection is not carried out as an MDF's construction management procedure. MDF normally uses a Project Manager that provides contract and technical administration and some site supervision but not full-time on-site inspection. Some MDF projects have had daily oversight in the past but only when the ADB or the WB, for instance, provides it through the engagement of outside consultants on specific MDF projects.

If MDF is to provide this additional inspection manpower, where will it be provided from? There are five currently identified possible alternatives and these have been discussed with Tt and MDF staff at the Workshop conducted at the Radisson Hotel on 19 March 2012. They are:

- a. **Existing MDF Staff:** The proposed MDF organization structure for implementing GMIP is shown as **Attachment 5**. MDF has indicated that it has 17 On-site Inspectors (MDF refers to these staff as Supervisors) for GMIP. MDF also said in late March that they believe they cannot field the full 34 staff required from their existing work force. However since mid-April, MDF is now saying they would supply any On-Site Inspectors required. They also ask that USAID provide some establishment support for them and for MDF as well;
- b. **MDF Hired Staff:** MDF (The GMIP Program Manager and the MDF Executive Director) has said that it will use their own staff or hire additional qualified staff to meet the number of On-Site Inspectors they now say they will provide. Tetra Tech needs to continue to hammer home the need for MDF to follow through on this commitment but if MDF does not provide the inspectors in a timely fashion, Tetra Tech needs to be in a position to call for support from Georgian engineering consultants; and
- c. **Staff Provided by Owner Agencies such as MRA, Ministry of Agriculture, Georgia United Water Corporation (GUWC), and/or the Municipalities:** Do these agencies have full time engineers they can divert to the GMIP seconded to

³ **What is a Site Inspector?** The job of a Site Inspector is to monitor work carried out on a construction site to ensure safety is upheld, environmental compliance is maintained, the standard of work follows initial plans, drawings and specifications and schedule, and completed work is properly measured for payment. They will need to carry out regular daily inspections, checking quality of work, searching out, reporting upon and assisting in the correction of any defects, and then each month reporting their overall findings to site managers and clients. They may also be required to provide supervision for workers on sites, and will liaise with a range of professionals. Site inspectors are sometimes known as Clerks of Works. They can be Junior Engineers with a background in engineering and an engineering degree or construction engineering or they can be journeymen construction supervisors.

⁴ The GMIP MDF Implementation Letters include funding for a \$52 Million project. While only \$40.6 Million is planned today, a balance \$11.4 Million remains to be programmed. Assuming GMIP construction subprojects will be funded to the full \$52 Million the total number of full time site inspector positions required might be extrapolated to be 44. Also note that all construction projects may not be on-going at the same time meaning that the number of full time Site Inspectors needed at any given time may be less than 44.

MDF? Yes and No. The Ministry of Agriculture and GUWC have both indicated willingness and commitment to provide full time On-site Inspectors to GMIP construction projects they will take over as Owners after MDF completes work. The Municipalities may be able to provide these full time inspectors. Some have so indicated. Others have not yet been contacted. The MRA has however stated that they do not have any engineering resources to second for this purpose. Unfortunately, the staff requirement for work they will take over as Owners is the largest;

- d. **Staff Provided to MDF by Georgian Consulting Engineering Firms:** Much of the remainder GMIP Subprojects may be through the traditional *Design-Bid-Build* approach to project implementation. In this event, the design firms will be Georgian engineering firms. These firms can also have their contracts written or modified to provide construction management services including On-Site Inspection. These firms could probably more easily provide the IT, transport and administrative services required by the inspectors as part of their service contracts. So, this alternative offers a possible solution to this issue. Of course it must be said that the provision of these services would be at a higher cost if MDF or another GOG agency were to provide them internally; and
- e. **Staff Provided by and Managed under Tetra Tech's USAID Contract:** Some discussion has been held calling for these proposed On-Site Inspectors to be hired or contracted under the Tt Oversight contract. Because of management issues and budget limitations this does not seem a viable alternative.

All of these alternatives have been discussed and considered. Each has advantages and disadvantages and each may have a currently unfunded cost requirement involved over and above those currently budgeted by either USAID or some other Georgian agency. And, while it is clear that full time On-Site Inspectors are needed for GMIP construction assure quality control over and above that normally provided by MDF, there are also serious issues

The Current GMIP Quality Control Question and Solution in a Nutshell

MDF has agreed to provide full time on-site inspection of GMIP construction. It is clear that GMIP work quality needs to be of acceptable quality and as specified in contract documents terms. If GMIP construction starts without agreed to MDF inspection, or the level of inspection is deemed not up to general industry acceptable levels of professional care, an alternative method of providing this inspection and Contractor direction will be required. This issue has been discussed between MDF, Tt and USAID for the past month.

It is MDF's responsibility to ensure the quality control of this GMIP work. Certainly the best and least cost solution to providing these services is for MDF to provide them. If MDF attempts to provide these services legitimately and is unable to do so because of a lack of resources, (vehicles, IT equipment, safety and inspection equipment, or even office space or per-diem) USAID will need to decide if the project can assist MDF with the provision of such resources. This will be the most cost effective solution to the QC issue.

If MDF staff simply cannot do the work, seems for whatever reason unwilling to do the work or provide the effort, Tetra Tech should bring this to the attention of MDF management with the goal of seeking MDF management input to correct any in-house barriers to the work getting done, such as overcoming resistance to change, or failure to follow direction. If this effort fails to correct itself within a reasonable time, say a maximum four to six weeks, Tetra Tech should seek USAID assistance in stopping the GMIP construction work and correcting the problem through other means. In this event, it is recommended that MDF be requested to provide qualified inspectors on site as soon as possible using staff from Georgian consulting engineer firms.

Further, Tetra Tech should assist MDF in engaging these consulting services and the SOW to provide these inspectors should also include some Tetra Tech direct communications and oversight of these inspectors as well. At the same time and after the procurement is completed, these inspectors should report to MDF Project Managers. If in the future, the MDF PMs are deemed unable to carry out their duties, this issue will also require attention through additional consultant staff.

affecting this choice. These are highlighted and discussed in the next section. These issues need to be considered when USAID, Tetra Tech and MDF are deciding how to provide qualified full time On-site Inspectors for GMIP construction Subprojects who will follow new construction management protocols and quality control procedures.

2. Other Factors Affecting the Choice of Who Provides On-Site Inspectors

- a. MDF Will “Hold” the GMIP Construction Contracts: MDF is the Contracting Agency under the USAID funded GMIP. As such MDF “holds” or owns the Construction Contracts and is wholly responsible for their execution and all aspects of their control. MDF has the final say in any agreement regarding construction management. Currently it seems MDF is open to allowing changes in their procedures that are seen to improve quality control and allowing others to participate in this activity, but in the end, these contracts belong to MDF and as such they are responsible for their proper execution. Now USAID could also withhold funding of these contracts if they are dissatisfied with any final arrangement decided upon by MDF, but make no mistake, changes in construction management responsibilities and procedures need to be expressly approved by MDF;
- b. Tetra Tech’s Contract Responsibility: Tetra Tech is responsible for Technical Support and Oversight to GMIP. Whether the On-Site Inspectors are from MDF or Georgian consultant firms Tetra Tech is required to provide project management oversight to assure engineering and construction best practices through such activities as quality control/quality assurance services, including materials measurement and services analysis, environmental monitoring, and testing to ensure delivered products are in accordance with design specifications and drawings.
- c. Sustainability: Of all the alternatives considered to provide improved On-Site Inspection, using staff from future GOG Owner agencies has the largest sustainability dividend. Hiring inspectors through Georgian consultant firms would probably increase the probability of quality control during construction but there would be less of a sustainability dividend to MDF or the GOG Owner. Agencies. The primary goal of improving On-Site Inspection is completed construction quality control and cost effectiveness but the secondary goal of providing sustainable outputs is important and worthy of some consideration in this deliberation. There would be some sustainability added value with the consultant approach. MDF currently does this kind of outsourcing. It would train MDF on how to best procure, engage, manage and take advantage of these contracted services to improve construction quality; and
- d. The Cost of On-Site Inspection: Deciding On-Site Inspection modalities it seems will not be completely resolved until actual construction is underway. And as this issue is also taking shape in a late stages of design and procurement, USAID, MDF and Tetra Tech need to remember that there will be a cost to proving this more specific and more intense level of On-Site Inspection. The costs for this are discussed and presented in the more detail in a following section and they may need to be arranged and provided in a

timely manner to ensure minimal delays in providing the desired level of inspection when new construction starts and not after it has started.

At this time having MDF hire new staff as needed with some staff being provided by future GOG Owner Agencies makes the most sense and it is recommended that this be allowed and that MDF be encouraged to provide these services in a professional manner as they have agreed they would. , if MDF commits to hiring them and commits to new construction management procedures as well this would be best for the project. The next best option would be to have MDF outsource CM responsibilities and place the CM contractors under MDF. However Tetra Tech should be prepared to work with MDF to outsource this inspection function if MDF cannot or will not provide these services.

3. **Additional Material Resources and Costs to Support Additional MDF GMIP On-Site Inspection Staff:** Regardless of where these On-site Inspectors come from or from where they are hired, they will need engineering and safety equipment, IT equipment, transportation, and other administrative support. **Attachment 3** outlines a basic budget for these resources along with estimated salary and benefit costs for the 34 On-Site Inspectors as well. Arrangements to provide these resources in a timely manner need to be made once the disposition of the staff is decided. To have the staff without these resources would be problematic. The basic budget may also require changes depending on who funds and provides this support. For MDF many of these costs are considered as part of the GoG in-kind contribution as agreed under the Project Assistance Agreement. If Georgian consultant engineering firms provide this support, a fee component for this budget would need to be added and the contracts openly competed. To address this issue it is recommended that MDF identify those items and costs that they will be unable to provide to support proposed USAID CM and on-site management program. It is also recommended that an option be included in all design solicitations for the bidders to propose their costs and requirements to provide the required CM and on-site supervision. At the same time Tetra Tech should also conduct a market survey to evaluate the capacity and costs for local firms to perform this works. This will allow GMIP to make an informed decision on the best way forward.
4. **Set CM and QA / QC Procedures for MDF and Tt:** Almost all the remaining CM “gaps” for MDF and Tt can be filled though the adoption of a set of written CM and QA / QC procedures and processes for GMIP. This GMIP CM Plan is being drafted now for adoption by both MDF and Tt. Once adopted in late May 2012 before the start of construction and used; future Construction Contractors will automatically become subject to its procedures. This will require them to comply with best CM practices and hopefully deliver more cost effective construction products.
5. **Additional Suggested Tt Operational Modifications:** Tt should consider the following:
 - a. **An Additional Expatriate Construction Engineer:** Another expat engineer construction specialist would benefit the project. Construction management and quality control of a \$52 million project portfolio is not a small job and

given the questions surrounding MDF's capability, the project could benefit from this added professional expertise. If sufficient funds are not available for an additional long term expat engineer, consideration should be given to support the project with regular expat and local STTA.

- b. **One or Two Additional Georgian Engineers:** If GMIP will have say 15 construction contracts and today it has three project engineers in its Tbilisi office that means each one will have five subprojects / Contracts to manage. Also given that one of the existing engineers seems like he will only have one irrigation project that means that the other two engineers will each have to carry seven Subprojects. These additional engineers might be road, structural or public utility specialists. There is another engineer who is the QA/QC Engineer. This person should not be carrying a project workload. So adding two additional project engineers results in each engineer carrying say four or five subprojects / contracts
 - i. **Diversify Paralegal responsibilities:** With the start of construction the paralegal specialist should begin focusing on such issues as requirements and status of construction permits, appropriate licensing of laboratories used for materials testing, compliance of contractors with all regulations required for batch plants and borrow pits & quarries, clarification of contract disputes with respect to local laws and regulations, communication with local and central government representatives on legal issues and local regulations, monitoring social issues related to IDPs and targeted beneficiaries, and monitoring contractor policies to ensure that they are in accordance with US regulations and Georgian labor law.
 - ii. **Seek an Engineer with Some AutoCAD skills:** TT might benefit having someone in the Tbilisi Office who can do sketches and drawings in AutoCAD.
- c. **Additional English Language Translation Capacity:** Soon, with the additional construction starting, there will be much more written work generated by MDF and Tt staff. The existing translation capacity in the Tt office could be easily overwhelmed. At least one additional and perhaps even two may be required.
- d. **Additional Office Space and Vehicles:** If Tt considers adding more staff it will need additional office space. Additional vehicles (2) for the heavier field work load are also going to be needed.
- e. **Reports Writer / Executive Secretary:** The COP and DCOP could benefit from another excellent English speaker and assistant who could help them write reports. This is going to be needed once more construction starts
- f. **Engage the University:** Having perhaps two engineering students from the University in the office as interns is common on USAID funded engineering projects. Capacity building and sustainability is important and perhaps these students could also help with translation duties. Tt might look into arranging this. Their services should be compensated but at say 30% of a regular engineering salary/
- g. **Additional Expatriate and Host Country LOE:** The Tetra Tech organization chart is shown in **Attachment 6**. In addition to the provision of more or

improved construction management services for GMIP, the additional services of an expatriate Engineer on a long term or continuous short term basis would benefit the project greatly. The QA/QC supervision, monitoring, and reporting requirements necessary to comply with US government regulations, USAID contract requirements, and USAID/Tetra Tech professional standards are much greater than initially anticipated. Many of these regulations and procedures are new to MDF, the local contractors, and even local Tt engineering staff. The diversity and number of the projects also adds to the level of effort required to provide proper technical review and oversight. . This is noted in “a.” above. The COP has his hands full managing the project and serving as the Chief Engineer. With construction valued at \$52 million, this is too heavy a workload for one expatriate engineer. Also, additional expatriate STTA Home Office technical support for studies, drawing and specification reviews and other specialized services are needed. And finally two additional host country engineers are needed. While the three project engineers now serving with GMIP are capable and will be able to function as Tt Subproject Managers, there are currently not enough host country engineers in the GMIP office to handle the workload as Project Engineers. The three Project Engineers and one QA/QC Manager are not enough. There needs to be five Project Engineers. This would allow a projected total 15 Subprojects / Contracts to be spread three each to five engineers. More than three contracts per engineer will be too heavy a workload for an individual GMIP project engineer. The QA/QC Engineer should not be carrying any projects as the designated project engineer; he will be working on all of the Subprojects.

6. **Motivation, Energy, Political Will and Training:** The suggested changes noted above while really basic best practices in infrastructure construction management and QA / QC will for MDF and the Georgian Construction Contractors represent a broad transformation in current construction operations. As such, resistance to change can be expected and should be planned for. Experience in other countries on similar projects show time and again that many managers, engineers and organizations are apprehensive of change and consequently are slow to change. It seems it is only when the negative consequences of not changing are well understood and outweigh the consequences of changing that change takes place. Thus it is that such change normally occurs slowly.

At the same time, experience on similar projects in other countries with Host Country Owner staffs and Construction Companies shows that with continual motivation, material and expertise support and incentive, change in CM practices can occur more quickly and result in increased cost effectiveness in construction. Training is also a large part of the solution and this includes three training at three levels – on-the-job, informal internal experience sharing meetings and formal workshops. Funding for such training can also be nominal and is also project funds well spent.

So, for GMIP it is suggested that measures such as meetings with senior MDF staff when needed, more Tt staff close and frequent interaction with MDF Project Managers, joint field trips, will need to be taken from time to time to overcome

resistance to change and MDF and Contractor training and workshops will be needed as well and can be used as motivation and incentive. Without an energetic approach that includes frequent formal and informal meetings to the adoption and use of these new construction management procedures, MDF and the Construction Contractors may not respond to the level of change needed in a manner sufficient to benefit GMIP fully. There must be management commitment to change with both MDF and the Construction Contractors. It will need to motivate them to adopt these changes.

While it may not be practical to train every MDF and Construction Contractor staff member working on GMIP subprojects, key staff should be trained in order to know what role they play in implementing an effective GMIP CM system. Training should start with Project Management and On-site Inspection staff and then begin with Construction Contractor staff. GMIP training should also not be seen as a one-time event. Rather, it should become an on-going process that helps to assure that all staff working on the project in general, and on the project team in particular, can successfully implement, and assure the success of the project's quality goals and requirements.

In some cases, resistance to change will need to be directly confronted. This also needs to be managed wisely. Specifically, this needs to be addressed by both USAID and Tt with recognized leaders in MDF and with the Contractors but also with dignity and respect. Both MDF and Construction Contractor senior management have voiced support for change and learning. So there needs to be an understanding that sometimes change requires more time than we might want to allow for it but if advances in quality and procedure adoption are being made, then allowances need also to be made to allow change to take full effect.

The point to this discussion is that for MDF and the Construction Contractors implementing GMIP with On-Site Inspectors and with more stringent CM procedures is going to be a learning process. There is a real sustainability dividend that can be achieved if this is handled well.

SUMMARY NOTES AND RECOMMENDATION ON GMIP CONSTRUCTION MANAGEMENT AND THE PROVISION OF FULL TIME DAILY ON-SITE CONSTRUCTION INSPECTION

Daily full time On-site Inspection under an improved construction management plan for GMIP Subprojects was not specifically called for under the USAID – MDF Implementation Letters but the need to provide adequate supervision is fully discussed and agreed. As this is the major finding of this study – GMIP Subprojects need competent daily full time On-site Inspection provide in accordance with an agreed upon Construction Management / Quality Control Plan, USAID, MDF and Tetra Tech need to meet and agree how this is accomplished.

This study recommends the following (but this needs to be finalized and agreed to by USAID, MDF and Tetra Tech):

1. Daily, full time, On-site Construction Inspection is required for GMIP Subprojects;
2. MDF and Tetra Tech On-Site Inspection and overall construction management will be provided as described in the new GMIP Construction Management Guidelines and Quality Control Plan;
3. MDF will provide Project Managers and four On-Site Inspection services for the first GMIP subproject – Rehabilitation Works for IDP Housing. This includes changes to

existing MDF construction management practices by their Supervisors and Project Managers in accord with the new CM Guidelines. USAID and MDF need to agree on how any needed additional resource support is provided for this;

4. MDF will provide Project Managers for the second GMIP Subproject - Rehabilitation Works for Tiriponi and Saltvisi Irrigation Systems. The Ministry of Agriculture will provide four On-Site Inspectors who will work for the MDF Project Managers. This includes changes to existing MDF construction management practices by their Supervisors and Project Managers in accord with the new CM Guidelines. USAID and MDF need to agree on how any needed additional resource support is provided for this; and
5. MDF will provide Project Managers for future Municipality Subprojects with the Municipalities providing seven On-Site Inspectors who will work for the MDF Project Managers (this assumes each Municipality can do this). This includes changes to existing MDF construction management practices by their Supervisors and Project Managers in accord with the new CM Guidelines. USAID and MDF need to agree on how any needed additional resource support is provided for this; and
6. Based upon MDF performance in 3, 4 and 5 above, Tetra Tech will make recommendations to USAID on the provision of On-Site Inspection for the balance remainder of GMIP Subprojects (initially this number would stand at 34 less 15 [see 3,4, and 5 above] or 19 remaining inspectors). This could include a recommendation that MDF utilize staff from future Georgian Engineering Design Consultants to provide such services to MDF through modifications to their design contracts. Therefore, if MDF has not been able or failed to:
 - a. Provide qualified On-Site Inspectors; and/or
 - b. Provide GMIP construction management services in accord with the new GMIP construction management guidelines,

as determined by Tetra Tech in its role as the oversight contractor, Tetra Tech should call a meeting with USAID and MDF, present its findings and make a case for MDF to either make the required changes or make arrangements to provide for such construction management services to be provided through Georgian Consultant Engineering firms. A final disposition to this issue needs to be agreed to be MDF and USAID.

Finally, **Attachment 4** offers suggestions for USAID, MDF and Tt follow up to the recommendations made herein.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
1	Management Responsibility	The responsibility for and commitment to organization, cost effectiveness in construction planning, procurement and implementation and a quality policy belongs to the highest level of management. Management should, therefore, declare and document its commitment. Management should ensure that policies are in place and to this effect are understood, implemented, and maintained throughout the organization and project.	MDF management is dedicated and involved in MDF's mission and direction. The MDF GMIP Program Manager is capable, experienced and knowledgeable. The only serious gap might be a lack of an "institutional engineering identity" and a lack of engineers in management positions. This negatively affects the ability of MDF to organize and manage infrastructure development, design, procurement and in particular construction in a professional technical and effective manner.	USAID might consider asking MDF to assign a GMIP Chief Engineer who assists the GMIP PM by providing professional and experienced engineering advice and guidance when it is needed within MDF on GMIP activities. MDF senior management should also be asked to provide positive reinforcement to MDF staff on the anticipated more intensive GMIP contract and construction oversight activities.	Tt GMIP needs to ensure MDF follow through on basic construction management practices like organization, process (DCS, use of checklists, etc.) excellence in engineering, quality control and safety.	Tt GMIP management needs to adopt and enforce the use of a Tt GMIP QA/QC Plan, a Document Control System, and a Safety Plan and then ensure adherence.	Construction Company management is perhaps accustomed to a lack of MDF supervision on site and in overall close contract management needed to ensure quality in completed construction and cost effective work.	Georgian Construction Company managers need to be briefed in meetings with MDF and Tt about GMIP requirements regarding contract management and quality control in finished construction. They will have to be open to change that includes close inspection, quality control, and the need for good record keeping and meeting a new level of contract expectations.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
2	Documented Construction Management Plan and Quality Management System	Written procedures and instructions should be developed for activities affecting quality in design, procurement and construction. Procedures and instructions should also be developed for control of processes including inspection, testing, disposition of nonconforming work and corrective action, maintenance of records, quality audits, and training.	MDF does not have an overall internal CM Plan or QA/QC Plan that covers design work, standards, and construction quality. It does have a detailed procurement plan.	MDF needs an internal CM and QA/QC Plan for its entire operation. For GMIP, MDF needs a more narrowly focused CM Plan and QA/QC Plan.	Tt does not have a documented GMIP CM QA/QC Plan although there is one drafted.	Tt should finalize their QA/QC Plan, adopt it and ensure it is used as a guide to their CM operations. Tt also needs to be prepared to assist MDF in the implementation of their daily site inspection duties and overall contract management and project requirements.	Contractors probably do not have internal QA/QC plans for their operations. Interviews with Contractors indicate they are interested to develop such plans and would work with Owners who require them.	Include draft QC Plans in GMIP RFPs that Contractors can see they will need to tailor to their operations and ensure that RFPs call for their development, adoption and use. Ensure this is well explained in Pre-Bid Meetings and then again in Pre-Construction meetings. No matter how many times a Contractor says they are ready for increased scrutiny, they are going to complain about it once construction starts and they are going to have to be schooled on it as well.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
3	Design Activity Control	The Design Plan identifies responsibility for the different design activities, what standards are acceptable, drawing and specification requirements, and who has the QA responsibility for design. It should also identify the various organizational interfaces required between and roles of MDF, the Contractor, and Tt for producing and commenting on the design, and specify the information to be documented, transmitted, and regularly reviewed. Finally, the plan should specify how the operating and maintenance agencies interface with those producing the design.	MDF lacks design standards, material standards, drawings standards. MDF lacks design QA plan. MDF does not keep an Unit Cost Book. DB Bid documents are deficient in requirements for drawings, specifications, and standards to be proposed by Contractor.	MDF should have a complete Design Activity Plan based upon their operations over the past 15 years. However, for GMIP, MDF needs to ensure that their designs are based upon well written SOWs and TORs when using DBB type procurement. For DB procurements, MDF needs to ensure that design, drawing and specification instructions for Contractors are well understood and that Contractors know what MDF and the future Owner O&M Agency wants and needs for these deliverables not just for the construction.	Tt does not design but they check MDF designs and the TORs and SOWs for their designs. They also check DB design specifications. At this time, they do so well but they could use some standardization and some accountability on this issue.	Tt should adopt a series of design and TOR/SOW checklists to use for this checking function that also include signatory and date blocks that indicate who did the check and when. Tt should also consider adding some resident structural, wastewater and road engineering capability. Finally Tt needs to ensure that MDF Scopes of Work for designs and/or construction include sufficient specific wording that refers to acceptable design and construction standards	As with MDF, local Georgian Construction Contractors, lack design standards, material standards, drawings standards and they lack design QA procedures. For GMIP, Contractors need to produce adequate designs, drawings and specifications based upon real standards that MDF and Tt can approve.	Contractors need to follow MDF instructions that will be included in their RFPS. MDF and Tt need to check Contractors design, drawings and specification work products.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
4	Document Control	Control of GMIP project documents includes the production and then review of planning, design, procurement, and then construction documents by authorized personnel, the distribution and storage of these documents, the elimination of obsolete documents, and control of changes to the documents. A system of document control, logging, hard copy filing, electronic copy filing, retrieval, and protection needs to be developed, adopted and then maintained from planning through construction all the way to handover.	MDF seems to lack a document control system although they say they have used them in the past and use them today.	For GMIP, MDF needs to ensure that they adopt a working DCS that ensures record hard copy and electronic documents and files are well kept, maintained and are available for USAID and GOG audit.	Tt has a corporate DCS. Tt GMIP is not using it although they have a draft DCS.	Tt GMIP needs to finalize its DCS, adopt it, and use it. Tt GMIP also needs a separate new person to manage the DCS, and they need a file server. This is "Mission Critical" for Tt GMIP.	From my interviews with Construction Contractors, they would not have special DCS systems. It is up to them whether they need this or not but it is clear that they should have it for GMIP. Currently it is beyond the scope of GMIP to require contractors to have a DCS.	If Construction Contractors can make the leap to generate required documentation and reporting when they need to do so under GMIP contracts, such as RFIs, letters, reports, schedules, submittals, etc. it will be enough. Numbering and filing these will really be MDF's and Tt's responsibility. Tt and MDF could also discuss the possibility of requiring document control systems by Construction Contractors as a contract requirement.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
5	Planned and Transparent Procurement	MDF should establish a documented GMIP procurement plan and ensure compliance. MDF should consider developing a list of acceptable GMIP Construction Contractors consistent with applicable WB and USAID procurement requirements. MDF should select Construction Contractors on the basis of their being able to comply successfully with bidding requirements, meet contract requirements, including quality and schedule and cost control requirements and successfully perform the work. MDF should ensure that procurement and contract rules are followed during the construction phase of the work - contract administration.	MDF has extensive WB Procurement Procedures in the their Operations Manuals. There is also USAID procurement instructions in their GMIP Ills. The GMIP RFPs need more reference to accepted construction and materials standards. MDF does not seem to use a formal Engineer's Estimate in the Bid Evaluations, although this is not clear and there could be confidentiality issues if this was used without sufficient control. There is also no Engineer in their Bid Evaluation Panels. It is unknown at this time how MDF carries out Contract Administration during construction.	USAID might consider asking MDF to include a senior MDF engineer on each USAID funded project bid evaluation panel. Tt needs to monitor MDF contract administration performance once contracts are signed and construction begins to determine if there any gaps in their ability to do so effectively. It is probable that MDF will need coaching in construction contract management under the increased GMIP scrutiny that will be given by Tt.	Tt does not procure GMIP construction services.	Tt should be a part of the overall MDF and Contractor contract administration QA process in checking drafts and ensuring service and construction contracts are properly administered. Tt's role will be on of coaching and instruction so as to ensure compliance with new procedures.	Construction Contractors do not procure GMIP construction services but they do sub-contract.	MDF and Tt should ensure that Contractors sub-contract according to the terms and conditions of their RFPs and Contracts.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
6	Construction Planning, Communications and Coordination	Having a good communications plan and making the most out of monthly, weekly, daily scheduled and informal meetings and communications between MDF, Contractors, Tt, USAID and others is essential to building and maintaining trust and ensuring activities are well understood and planned so as to prevent misunderstanding and to achieve effective management.	MDF has experience managing Construction Contractors for effect. However it is clear that GMIP requirements will require them to be more closely involved with Contractors on a <u>DAILY BASIS with formal daily, weekly and monthly reporting</u> . This will be a large change in MDF construction management operations. To date we also know that MDF does not take full advantage of Pre-construction Meetings, and needs a formal Contractor Request for Information (RFI) System. MDF also does not have a formal Communications Plan that can be used as a model during construction.	MDF needs to develop a communications plan that addresses the daily, weekly and monthly reporting and communications under each Subproject that can be useful for daily operations and includes the collection, management, use and dissemination of these reports. This comms plan needs to include sections on the use and recording of email, telephone calls, and meetings, including managing email files and taking and using minutes to meetings. A good communications plan will be essential to GMIP CM success.	Tt does not plan GMIP construction but will review MDF and Construction Contractor Plans and it will communicate with both MDF and Contractors about construction. It will do so under the rules and procedures set up under MDF's GMIP Communication Plan that should govern telephone, email, letter and meeting etiquette and schedules.	Tt need to assist MDF and the Construction Contractors in communications and record keeping under GMIP. There is going to be a very large amount of new paperwork for both entities and they are going to have to led to implement changes to their established non-practices. Such changes need to be described in Bid Documents, the Contract, and the new Construction Management Guidelines.	There is a lack of correspondence between MDF and Construction Contractors on non-USAID funded projects in terms of regular reporting, material submittals, testing results, and overall coordination of the works.	Under GMIP, Construction Contractors are going to have to provide a great deal more submittals and paperwork than they are used to doing. If they respond properly and can provide the information and documentation on time and as required MDF and Tt can manage their communications plan. This is going to be a serious change for these Contractors and it needs to be discussed and explained with them at the Pre-Bid and Pre-Construction Conferences.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
7	Construction Scheduling and Control	A schedule of construction shall be kept by the Contractor and used by MDF and Tt to monitor Contractor's performance over time. This should be the basis for primary performance discussions in the monthly meeting.	MDF Contractors do not seem to produce and use project schedules seriously. This needs to change. These schedules need to be produced once at the beginning of a project by Contractors and then used as a major progress measurement tool during monthly meetings and for overall contract performance management.	MDF needs to include wording their RFPS to this effect. Further the inclusion of a good schedule by Contractors using MS Project as part of their bid and Contract package needs to happen as well as using it once work starts. This includes updating the schedule monthly to show progress and using it as the basis of discussions at the monthly Subproject construction meeting.	Tt does not schedule GMIP construction but it will be reviewing GMIP construction schedules provided by Construction Contractors to MDF.	Tt needs to have capability to review construction schedules and advise MDF on managing contractor performance.	Construction Contractors provide a construction schedule in their Bid Packages. Thus far they so do using an Excel spreadsheet. This is inadequate. They also do not understand sufficiently that this is going to be used to judge their progress at monthly meetings once the contract is executed. RFPs and Contracts need to specify MS Project as the software to be used for scheduling and how these contractor updated schedules will be used at monthly construction meetings	MDF and Tt should ensure that Contractors are warned about their schedule control during Pre-Bid and Pre-Construction Meetings. Schedule management and use during construction meetings will be a major item of discussion each month.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
8	Construction Material and Process Acceptance	All construction materials brought to site requires review, inspection and approval and acceptance should be recorded. All materials need to be properly stored. Contractors should identify processes that directly affect finished work quality and should ensure these processes are performed under controlled and monitored conditions so the results can be verified by inspection and testing.	MDF PMs today gather and file "cut sheets" and product data sheets from Contractors. However, they do not keep a log of such submittals. Further they do not do their own independent testing to ensure compliance with specifications. There are also some materials and equipment that are not checked. In all cases, MDF does not issue any acceptance or rejection paperwork.	Under GMIP, MDF will have to have daily construction inspectors on-site who inspect and accept all materials brought on site by a Contractor. MDF will also need to maintain document on this function throughout the project, including a material/equipment submittals and acceptance log. MDF Site Inspectors will also need to be able call for independent testing from time to time on ongoing/completed construction and/or materials at Contractor's expense. This needs to be specified in the contracts.	Tt does not inspect or verify construction material acceptability on site however GMIP staff will review acceptance documents	Tt will need to review, interpret and file material review and acceptance documents. Guidelines for this oversight should be included in the new Construction Management Plan.	MDF today receives suppliers "cut sheets" and product specification sheets from Contractors. These are then kept on file. This is only the first step in the process. Contractors need to understand that they need a written MDF approval before purchasing ALL material and equipment.	Construction Contractors will need to be taught the material and equipment submission, review and acceptance / approval protocol. They will also need to know that MDF reserves the right to independently test materials and equipment even after the "cut sheet" or the product data sheet has been approved.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
9	Observation, Inspection, Testing, Measurement, and Cost Control	Inspection and testing procedures should be planned and executed as necessary to verify construction quality. Procedures should be specified, implemented, and the results documented for acceptance. A means should be provided for identifying the inspection and test status of work during construction. The purpose of this is to ensure that only work that has passed the required inspections and tests is accepted. All completed work needs to be measured and those measurements checked to ensure accurate payment and cost control.	MDF provides some daily inspection of Construction Contractors but not normally full time and without a consistent inspection and testing plan. No completed work spot checking and measurement plan is in place. Regular and consistent quality control procedures are required to ensure completed work acceptability in accordance with drawings and specifications. This is also essential for Cost Control.	MDF needs to have enough full time qualified construction inspectors who provide daily construction inspection on GMIP contracts, managing any materials testing needed over and above supplier provided cut sheets and overseeing all work done by Contractors in accord with a well established construction management plan. Further inspectors need to measure completed work to ensure that payment is made only for measured completed and accepted work. This should all be done to the extent possible on standard forms.	Tt has yet to adopt its QA/QC plan and as such has no formal procedure to carry out site observation visits and make reports exist.	Tt needs to adopt its QA/QC plan. Tt also should have and use standard forms for all site QA functions. These should be included in the new GMIP Construction Guidelines.	Georgian Construction Contractors are accustomed to daily inspection but they need to understand that this is going to be a requirement under their GMIP work.	GMIP potential and actual Contractors need to know that there is going to be tight daily on-site inspection of their work. The best time to alert them of this and to review what is will entail is at Pre-Bid and Pre-Construction meetings.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
10	Construction Reporting	A monthly reporting procedure is required. MDF should report monthly to USAID. Tt should report monthly to USAID. Both these reports should be with a standard format.	MDF does not have a formal monthly Construction Contractor reporting format. This is essential for GMIP.	MDF needs a formal monthly report format that it can use for each one of the GMIP contracts. Such monthly reports need to be prepared and submitted to USAID by the 10th of the following month.	Tt will not be making primary construction reports but will be reviewing Construction Contractor and MDF reports. Further Tt make be tasked to prepare and submit monthly contract reports by USAID .	Tt needs to determine its role in monthly construction contract reporting. If it will need to make monthly contract reports it will need a form to do so, as agreed and approved by USAID. If not, it will need to review MDF reports.	Contractors do not submit detailed monthly reports to MDF now other than pay requests.	Under GMIP, Contractors will be required to submit a month activity report that details manpower, equipment, physical, time, and financial progress, quality control and projections. Contractors need to be informed about this and assisted in understanding what is required and when. Such a format could be included in the RFP and Contract.
11	Nonconformance Reporting and Corrective Action Plan	A system of documented nonconformance notices and reports (NCRs) are needed for each subproject. Each NCR needs to be formally cleared.	MDF does not have a formal nonconformance reporting and corrective action program. This is needed under GMIP as part of the Daily Inspection Program.	As part of their daily inspection program and their QA Procedures, MDF needs a formal non-conformance notice and reporting system that includes a formal corrective action program. All such NCR reporting and actions need to be fully documented.	Tt will not have to make nonconformance reports but will have to review them.	Tt needs a system to record nonconformance, follow up and ensure corrective action is done.	MDF does not use a formal nonconformance work and corrective action report reporting procedure now	Contractors will need to be informed and trained on this system at the beginning of each subproject so they understand how it works, why it is done, and their role in resolving issues.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
12	Safety Plan	MDF, Tt, and Construction Contractors each need a construction activity Safety Plan and then ensure compliance.	MDF does not have a formal Safety Plan. MDF needs safety equipment. Need staff safety training.	MDF needs an Agency wide Safety Plan however under GMIP, it needs a GMIP Safety Plan that it follows for work under all its GMIP contracts.	Tt GMIP needs to finalize and adopt its Safety Plan.	Tt GMIP needs to use its corporate Safety Plan to develop GMIP Safety Plan. Currently Tt holds safety meetings and procured a USIAD approved list of safety equipment.	Some Georgian Contractors have Safety plans now. Some do not. Most Georgian Contractors have some understanding about project safety management but it is not a totally well understood concept.	Under GMIP, Contractors will be required to have a Safety Plan and then to enforce it. Contractors need to be informed about this at Pre-Bid and Pre-Construction Conferences to ensure they are in contract compliance.
13	Quality Audits	MDF, Tt and Contractors need to have an internal systems of checks that ensure CM and QC plans are being followed and that intended results are being met,	MDF does not have a QA .QC Plan. MDF needs this and under GMIP and they need to ensure that any QC plans that are in place are being followed. This is the purpose of auditing and checking.	Along with any MDF CM and QC Plan, a system needs to be in place to ensure these processes and procedures are working and producing the intended results.	Tt needs to finalize and adopt its draft QA/QC Plan.	Tt has a draft QA/QC Plan. QA Audits are included n the draft Plan. The Plan needs to be completed, adopted, and followed.	Construction Contractors lack familiarity with Quality Control Plans and this means Quality Audits as well.	Under GMIP. Construction Contractors will be required to have a Quality Control Plan. Producing one and then using it will be the responsibility of MDF to enforce.

ATTACHMENT 1 - GMIP Construction Management (CM) Gap Analysis

GMIP CM System Elements			Municipal Development Fund (MDF)		Tetra Tech (Tt)		Construction Contractors	
#	CM Element	Element Description	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action	Perceived GAP	Suggested Action
a	b	c	d	e	f	g	h	i
14	Completed Work Handover, Defects & Liability Period Management, and Close-out System	A formal set of procedures for project handover to the O&M Owner organization is needed. A formal Defects & Liability Period Management and reporting plan is needed. Contract Close Procedures are Needed.	MDF lacks a formal completed project handover procedure but they do hand over completed facilities at the end of construction projects. MDF manages the Defects & Liability periods of completed contracts. MDF does not have a formal contract close out process.	A formal handover process that includes written construction contractor work completion inspections and approvals, written agreements and acceptances from O&M Owners, and Tt and USAID is needed. Further a written D&L Period management system is needed and a written and approved Construction Close-Out Procedure is needed.	Tt does not need its own plan along these lines however it needs to be able to review and approve of such work carried out and managed by MDF.	Tt will need to assist MDF is developing these plans for their work. This includes finalizing standard formal handover checklists, letters and step by step procedures.	Construction Contractors do not have formal procedures for these activities.	These requirements, including any performance testing during the D&L Period, need to be included in Construction Contracts. MDF will need to ensure that Contractors comply with the requirements of these systems once MDF has them in place and in Contracts.
15	Training Plan	A GMIP training plan should include formal and informal on-the-job training for all staff.	MDF does not have a formal training plan but there has been Tt provided and USACoE provided training. While this is not a requirement under GMIP, USAID seeks output sustainability as a result of the project. However any training plan discussion needs to include funding, time and existing employee rules and regulations.	A formal MDF training program under the GMIP would be helpful and inexpensive.	Tt does not have a formal training plan but it should have one for its staff.	A formal Tt training plan needs to be written up and adopted by Tt. Thusfar Tt staff have also participated in procurement and construction management training under GMIP.	It is unknown if Georgian Contractors have their own written training plans.	Under GMIP, Contractors will not be required to have their own written training plans.

Attachment 2 - Municipal Infrastructure and IDP Housing Project (GMIP) – Const. Management

Construction Inspector Breakdown and Location

1 USD (\$) = 1.64 Lari

	Component	Budget (\$)	Current Cost Estimate (\$)	# of Sub projects	# of On-Site Inspectors
1	Municipal Infrastructure	\$ 9,570,000	\$ 8,693,731	9	7
2	Irrigation	\$ 8,160,000	\$ 7,734,000	1	4
3a	Durable Housing - Cottages	\$ 8,670,000	\$ 6,051,641	11	4
3b	Durable Housing - Buildings	\$ 26,000,000	\$ 18,167,721	43	19
		\$ 52,400,000	\$ 40,647,093	64	34

#	Component	Region	Municipality / Location	Description	Current Cost Estimate		Future Owner	Construction Inspector
					USD (\$)	GEL		
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>
1	Municipal Infrastructure	Mtskheta-Mtianieti	Dusheti	Bank Protection Works and Bridge(s) Rehabilitation on Dushetiskhevi River	\$ 1,522,956	2,497,648	Dusheti Municipality	1
2	Municipal Infrastructure	Mtskheta-Mtianieti	Dusheti	Rehabilitation of Streets and Storm Drains (3.1 km); 8 streets	\$ 723,045	1,185,794	Dusheti Municipality	
3	Municipal Infrastructure	Mtskheta-Mtianieti	Mtskheta	Roads Rehabilitation (10.4 km)/ 32 streets	\$ 1,253,081	2,055,053	Mtskheta Municipality	1
4	Municipal Infrastructure	Racha-Lechkhumi	Oni	Rehabilitation of Water Supply Head Works/Intake Structure	\$ 205,444	336,928	GUWC	1
5	Municipal Infrastructure	Racha-Lechkhumi	Oni	Oni Town Roads (2.6 km)/ 5 Streets, Asphalt Paving	\$ 708,083	1,161,256	Oni Municipality	
6	Municipal Infrastructure	Shida-Kartli	Gori	Water Supply and Wastewater Collection System Rehabilitation, Installation of 3,770 Apartment Water Meters in 122 Apartment Buildings	\$ 1,026,413	1,683,317	GUWC	1
7	Municipal Infrastructure	Shida-Kartli	Gori	Riverbank Protection/Walkway on 26 May River (bank protection - 755m; walkway - 705m)	\$ 253,969	416,509	Gori Municipality	1
8	Municipal Infrastructure	Shida-Kartli	Gori	Gorijvari Saint George Church Road Rehabilitation (1.45 km)	\$ 647,307	1,061,583	Gori Municipality	
9	Municipal Infrastructure	Shida-Kartli	Kareli	Rehabilitation of Sogholasheni-Dvani Motor Road (12.3 km)	\$ 2,353,433	3,859,630	Kareli Municipality	2
10	Irrigation	Shida-Kartli		Tiriponi and Saltvisi Irrigation Schemes	\$ 7,734,000	12,683,760	Mtkvari-M	4
11	DH-Cottages	Shida-Kartli	Akhalsopeli	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing, Community Drainage Works	\$ 785,409	1,288,071	Akhalsopeli Municipality	4
12	DH-Cottages	Shida-Kartli	Mokhishi	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing	\$ 261,382	428,667	Mokhishi Municipality	

Attachment 2 - Municipal Infrastructure and IDP Housing Project (GMIP) – Const. Management

Construction Inspector Breakdown and Location

1 USD (\$) = 1.64 Lari

	Component	Budget (\$)	Current Cost Estimate (\$)	# of Sub projects	# of On-Site Inspectors
1	Municipal Infrastructure	\$ 9,570,000	\$ 8,693,731	9	7
2	Irrigation	\$ 8,160,000	\$ 7,734,000	1	4
3a	Durable Housing - Cottages	\$ 8,670,000	\$ 6,051,641	11	4
3b	Durable Housing - Buildings	\$ 26,000,000	\$ 18,167,721	43	19
		\$ 52,400,000	\$ 40,647,093	64	34

#	Component	Region	Municipality / Location	Description	Current Cost Estimate		Future Owner	Construction Inspector
					USD (\$)	GEL		
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>
13	DH-Cottages	Shida-Kartli	Skra	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing	\$ 360,246	590,803	Skra Municipality	
14	DH-Cottages	Shida-Kartli	Karaleti	Public Wastewater Works, Community Drainage Works	\$ 106,593	174,813	Karaleti Municipality	
15	DH-Cottages	Shida-Kartli	Berbuki	Public Water Works, Indoor Water Plumbing	\$ 44,738	73,370	Berbuki Municipality	
16	DH-Cottages	Shida-Kartli	Shavshevbi	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing	\$ 689,740	1,131,174	Shavshevbi Municipality	
17	DH-Cottages	Shida-Kartli	Khurvaleti	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing, Community Drainage Works	\$ 496,941	814,983	Khurvaleti Municipality	
18	DH-Cottages	Shida-Kartli	Teliani	Indoor Water Plumbing, Community Drainage Works	\$ 70,404	115,463	Teliani Municipality	
19	DH-Cottages	Shida-Kartli	Metekhi	Public Water Works, Indoor Water Plumbing	\$ 36,485	59,835	Metekhi Municipality	
20	DH-Cottages	Mtskheta-Mtianieti	Tsilkani	Public Water-Wastewater Works, Indoor Water-Wastewater Plumbing, Community Drainage Works	\$ 1,785,444	2,928,128	Tsilkani Municipality	
21	DH-Cottages	Mtskheta-Mtianieti	Frezeti	Public Wastewater Works, Indoor Water-Wastewater Plumbing, Community Drainage Works	\$ 1,414,259	2,319,385	Frezeti Municipality	1
22	DH-Buildings	Kvemo-Kartli	Marneuli	ex-Kindergarten Building	\$ 220,408	361,470	Marneuli Municipality	
23	DH-Buildings	Shida-Kartli	Kareli	Vocational School Building	\$ 518,574	850,462	Kareli Municipality	
24	DH-Buildings	Imereti	Kutaisi	Police Building of the 3 Region	\$ 301,469	494,409	Kutaisi Municipality	
25	DH-Buildings	Imereti	Zestaphoni	Central Hospital	\$ 714,786	1,172,248	Zestaphoni Municipality	
26	DH-Buildings	Imereti	Zestaphoni	Central Hospital	\$ 140,298	230,088	Zestaphoni	

Attachment 2 - Municipal Infrastructure and IDP Housing Project (GMIP) – Const. Management

Construction Inspector Breakdown and Location

1 USD (\$) = 1.64 Lari

	Component	Budget (\$)	Current Cost Estimate (\$)	# of Sub projects	# of On-Site Inspectors
1	Municipal Infrastructure	\$ 9,570,000	\$ 8,693,731	9	7
2	Irrigation	\$ 8,160,000	\$ 7,734,000	1	4
3a	Durable Housing - Cottages	\$ 8,670,000	\$ 6,051,641	11	4
3b	Durable Housing - Buildings	\$ 26,000,000	\$ 18,167,721	43	19
		\$ 52,400,000	\$ 40,647,093	64	34

#	Component	Region	Municipality / Location	Description	Current Cost Estimate		Future Owner	Construction Inspector
					USD (\$)	GEL		
a	b	c	d	e	f	g	h	i
							Municipality	
27	DH-Buildings	Imereti	Zestaphoni	L.T.D. " Central Polyclinic of Zestaphoni Region"	\$ 292,369	479,486	Zestaphoni Municipality	1
28	DH-Buildings	Imereti	Zestaphoni	LTD "Zestaphoni Stomatology polyclinic"	\$ 292,369	479,486	Zestaphoni Municipality	
29	DH-Buildings	Imereti	Vani	4 Vocational School	\$ 455,328	746,738	Vani Municipality	1
30	DH-Buildings	Imereti	Tskhaltubo	ex-Statistic Building	\$ 182,245	298,882	Tskhaltubo Municipality	
31	DH-Buildings	Imereti	Terjola	Hospital	\$ 753,252	1,235,334	Terjola Municipality	
32	DH-Buildings	Imereti	Khoni	Regional Hospital Ltd "Janmrteloba"	\$ 1,146,320	1,879,965	Khoni Municipality	1
33	DH-Buildings	Imereti	Khoni	Khoni Ambulance Station	\$ 345,000	565,800	Khoni Municipality	
34	DH-Buildings	Imereti	Baghdati	Ltd "Baghdadi Medical Centre"	\$ 1,150,000	1,886,000	Baghdati Municipality	1
35	DH-Buildings	Kakheti	Gurjaani	Regional Hospital of Gurjaani	\$ 3,926,100	6,438,804	Gurjaani Municipality	3
36	DH-Buildings	Shida-Kartli	Khashuri	Main Hospital of Khashuri	\$ 734,850	1,205,154	Khashuri Municipality	1
37	DH-Buildings	Samtskhe-Javakheti	Borjomi	Borjomi Maternity Hospital	\$ 142,600	233,864	Borjomi Municipality	
38	DH-Buildings	Mtskheta-Mtianieti	Mukhrani	Mukhrani Medical Service	\$ 207,000	339,480	Mukhrani Municipality	
39	DH-Buildings	Imereti	Kutaisi	Lyceum of Eltecric Technic	\$ 382,983	628,093	Kutaisi Municipality	1
40	DH-Buildings	Imereti	Kutaisi	Kindergarten "Aisi"	\$ 427,324	700,811	Kutaisi Municipality	
41	DH-Buildings	Imereti	Kutaisi	Kulinary Collage	\$ 606,498	994,657	Kutaisi Municipality	1
42	DH-Buildings	Imereti	Kutaisi	# 23 Kindergarten	\$ 436,167	715,313	Kutaisi Municipality	
43	DH-Buildings	Imereti	Kutaisi	Kindergarten "Tsugrumela"	\$ 436,167	715,313	Kutaisi Municipality	1
44	DH-Buildings	Imereti	Kutaisi	Leather Shoes Kindergarten	\$ 237,770	389,943	Kutaisi Municipality	
45	DH-Buildings	Imereti	Kutaisi	# 1 Kindergarten-1 Block	\$ 88,952	145,881	Kutaisi Municipality	
46	DH-Buildings	Imereti	Kutaisi	# 1 Kindergarten-2 Block	\$ 88,952	145,881	Kutaisi Municipality	1
47	DH-Buildings	Imereti	Kutaisi	# 1 Kindergarten-3 Block	\$ 88,952	145,881	Kutaisi Municipality	
48	DH-Buildings	Imereti	Kutaisi	# 24 Kindergarten	\$ 431,370	707,446	Kutaisi Municipality	
49	DH-Buildings	Imereti	Kutaisi	Administrative Building	\$ 164,334	269,507	Kutaisi Municipality	
50	DH-Buildings	Imereti	Kutaisi	Pedagogical training institute Hostel	\$ 258,172	423,402	Kutaisi Municipality	
51	DH-Buildings	Imereti	Kutaisi	Airport Administrative Building	\$ 184,900	303,236	Kutaisi Municipality	1

Attachment 2 - Municipal Infrastructure and IDP Housing Project (GMIP) – Const. Management

Construction Inspector Breakdown and Location

1 USD (\$) = 1.64 Lari

	Component	Budget (\$)	Current Cost Estimate (\$)	# of Sub projects	# of On-Site Inspectors
1	Municipal Infrastructure	\$ 9,570,000	\$ 8,693,731	9	7
2	Irrigation	\$ 8,160,000	\$ 7,734,000	1	4
3a	Durable Housing - Cottages	\$ 8,670,000	\$ 6,051,641	11	4
3b	Durable Housing - Buildings	\$ 26,000,000	\$ 18,167,721	43	19
		\$ 52,400,000	\$ 40,647,093	64	34

#	Component	Region	Municipality / Location	Description	Current Cost Estimate		Future Owner	Construction Inspector
					USD (\$)	GEL		
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>
52	DH-Buildings	Imereti	Kutaisi	# 8 Kindergarten	\$ 175,964	288,581	Kutaisi Municipality	1
53	DH-Buildings	Imereti	Kutaisi	Hotel "Zeskho"	\$ 175,338	287,554	Kutaisi Municipality	
54	DH-Buildings	Imereti	Kutaisi	Junior Tourist House	\$ 167,218	274,237	Kutaisi Municipality	
55	DH-Buildings	Imereti	Kutaisi	Kindergarten-13	\$ 90,301	148,094	Kutaisi Municipality	
56	DH-Buildings	Imereti	Kutaisi	Kindergarten-14	\$ 90,301	148,094	Kutaisi Municipality	
57	DH-Buildings	Imereti	Kutaisi	Kindergarten-15	\$ 90,301	148,094	Kutaisi Municipality	1
58	DH-Buildings	Imereti	Vani	Vocational School	\$ 239,634	393,000	Vani Municipality	
59	DH-Buildings	Imereti	Tskhaltubo	Kindergarten of Vartsikhehesi	\$ 180,112	295,384	Tskhaltubo Municipality	
60	DH-Buildings	Imereti	Kvitiri	Kindergarten	\$ 176,792	289,939	Kvitiri Municipality	
61	DH-Buildings	Racha-Lechkumi	Tsageri	Hotel "Lechkumi"	\$ 420,504	689,627	Tsageri Municipality	
62	DH-Buildings	Samegrelo-Zemo-Svaneti	Zugdidi	Kindergarten	\$ 450,810	739,328	Zugdidi Municipality	1
63	DH-Buildings	Samegrelo-Zemo-Svaneti	Senaki	3 Half Secondary School	\$ 189,584	310,918	Senaki Municipality	1
64	DH-Buildings	Samegrelo-Zemo-Svaneti	Menji	Kids Sanatorium, II Building	\$ 365,351	599,176	Menji Municipality	

Attachment 3 - GMIP Construction Management Gap Analysis - Resource Requirement

#	Description	# Required	Cost Per Month or Unit (GEL)	# of Months	Total
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
A Staff Salaries and Other Costs					
1	On-Site Inspectors	34	750	12	306,000
2	Benefits (Insurances, Health, Vacation, etc.)	34	550	12	224,400
Sub-Total - Salaries					530,400
B IT Equipment and Materials					
1	Laptop Computers	34	900		30,600
2	Laptop Bag	34	70		2,380
3	Wireless Optical Mouse	34	30		1,020
4	MS Office Software	34	350		11,900
5	Memory Sticks - 8GB	90	60		5,400
6	Digital Camera	34	120		4,080
7	Cell Phone	34	50		1,700
Sub - Total-IT					57,080
C Inspection and Safety Equipment					
1	Hardhat	34	50		1,700
2	Safety Vest	34	35		1,190
3	Leather Gloves	34	30		1,020
4	Safety Glasses	34	30		1,020
5	25 M Tape Plastic Measure	34	40		1,360
6	5 M Steel Tap Measure	34	30		1,020
7	50 CM Level	34	18		612
8	20 CM Level	34	15		510
9	Engineer's Notebook	170	16		2,720
Sub-Total - Equipment					11,152
D Administration and Office Supplies					
1	Rented Vehicle, Driver, Fuel for 12 Months	34	750	12	25,500
2	Furnishings (desk, chair, bookshelf)	34	900		30,600
3	Paper, Pens, Pencils	34	20	12	680
4	Files, Notebooks	340	30	12	10,200
5	Monthly Phone Charges	34	25	12	850
6	Other Office Charges	34	40	12	1,360
7	Photocopying	34	15	12	510
Sub-Total - Administration					69,700
Total GEL					668,332
Total USD			1.65	GEL/USD	\$405,050

Attachment 4 – USAID, MDF, and Tt GMIP Construction Quality Control Suggestions for Follow Up

The findings of the Gap Analysis need to be discussed between USAID, Tt and MDF. There needs to be clear agreement between all parties about the level of quality needed during and at the finished construction stage for USAID approval and payment authorization. MDF must agree that changes to its current system of project construction monitoring are needed and also must agree to follow through with institutional and operational changes. Tt needs to consider changes to its internal staffing and other resources. USAID must be singularly clear on its expectations and must also be willing to consider budget changes to provide needed resources to both MDF and USAID. Without this last understanding and agreement by USAID, any MDF and Tt changes in attitude and desire to change will be less than needed.

Over the course of the first four months of GMIP construction, it is suggested that among other things, USAID, MDF and Tt address these issues below in their weekly meetings as agenda points. Formalizing these discussions as part of the weekly meetings will ensure that they are given proper attention and that agreements are being kept as part of the weekly meeting minutes. Also below the proposed agenda items are some suggested ideas for USAID, MDF and Tt to keep in mind as possible actions that might be taken over this four month time period.

A. Proposed Agenda Points for GMIP Weekly Meetings – these should simply be discussed each week.

1. GMIP Construction Quality Control

- a. MDF Construction QC Activities
 - i. On-Site Inspection Staff Commitment and Staff Identification
 - ii. Addressing MDF QC Resource Needs
 - iii. Lining Up Georgian Consulting Engineering Replacement Inspectors for Back Up
- b. Construction Contractor Relationship Building and Education
 - i. MDF and Tt meetings with Contractor
 - ii. Preconstruction conference(s) schedules

2. Tt GMIP Office Adjustments

B. Notes and Possible Actions Over the Next Four Month Period

1. GMIP Construction Quality Control

- a. MDF Construction QC Activities
 - i. **On-Site Inspection Staff Commitment and Staff Identification**
 - 1. MDF should report at each weekly GMIP meeting how many On-Site Inspectors it has ready to go to the field. It should report on where these inspectors are coming from – within MDF existing

staff or hired staff. Issues with hiring staff should be discussed and reported if there are any.

2. Inspectors from the Ministry of Agriculture and other “Owners” should also be discussed in terms of their arrival, their work, their commitment as well. Although it has not been discussed, inspectors from other agencies may also have problems
3. MDF should report at each weekly GMIP meeting on any issues it has with inspectors or their equipment, travel arrangements, etc.
4. Designated MDF Project Managers for the first two GMIP Construction Contracts / Subprojects should come to the weekly meetings and make a brief report on the subproject. This should become a regular feature of the weekly GMIP meeting in any event. And as more subprojects come on line after signing construction contracts MDF PMs should brief the meeting each week on each one.
5. The Tt QA/QC Manager should hold informal meetings with MDF Project Managers about the CM Guidelines and QC Plan
6. Tt Project Engineers should also be meeting with the two MDF Subproject Project Managers informally especially after contracts are signed. They should also attempt to travel with them to the field so they can do subproject visits together.
7. If there any issues with MDF commitment and/or follow through on agreed upon level of inspection and QC management over the first month of construction of the first two contracts, the Tt COP/DCOP should meet with the MDF Program Manager and the MDF Executive Director and attempt to get his support to effect the changes needed within MDF to correct any issues. There should be no equivocation telling MDF there are problems with their construction QC if that is the case.

ii. **Addressing MDF QC Resource Needs**

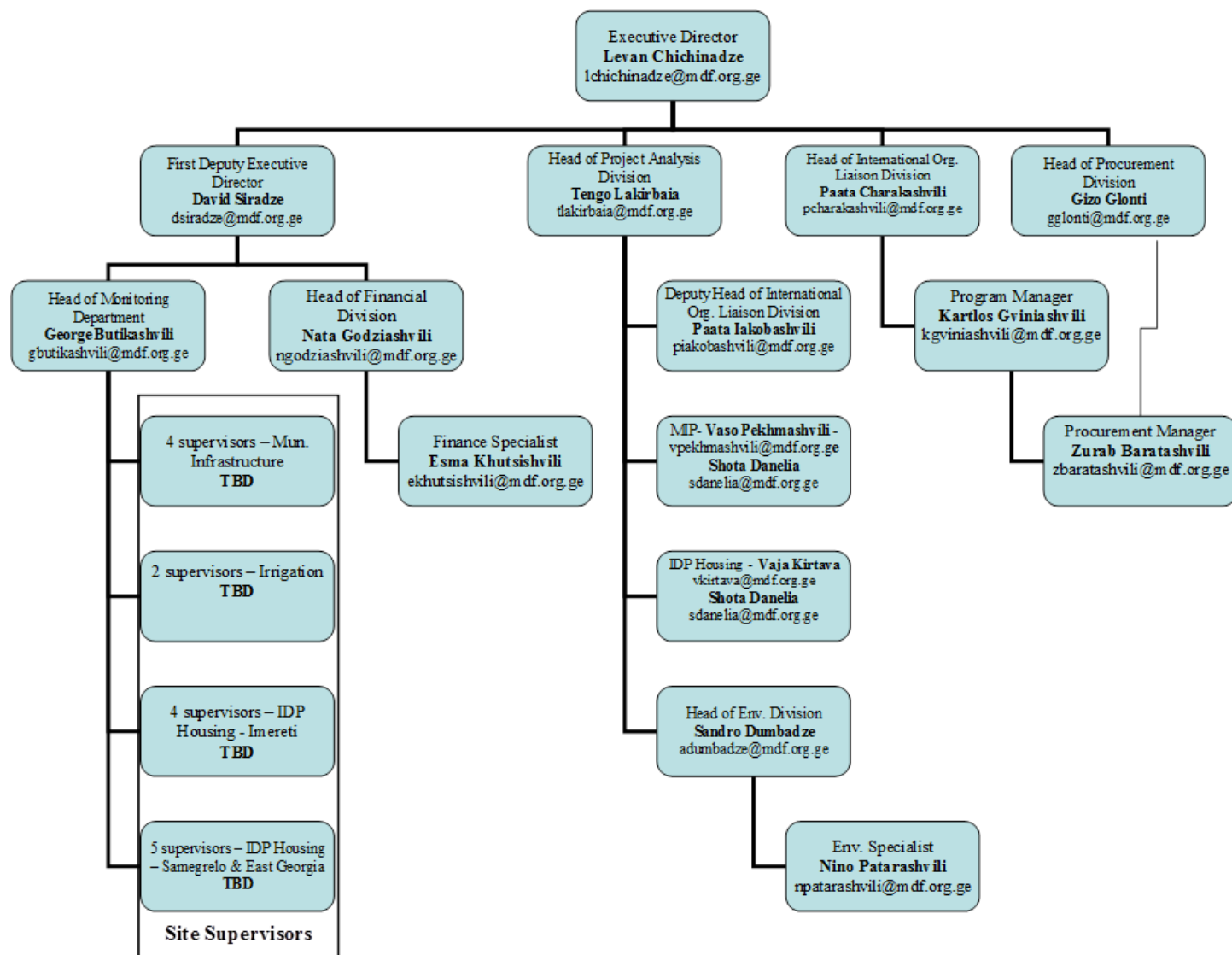
1. If MDF is trying to advance its level of CM and QC, Tt and USAID should support that effort.
2. This may mean USAID allowing funds to be used to support staffing, equipment, transport and per-diem for inspectors. This has been spoken about several times.
3. Tt might try to help MDF with equipment procurement if time to procure is an issue with MDF.
4. Finally, lack of resource should not be the roadblock to MDF providing CM services.

iii. **Lining Up Georgian Consulting Engineering Replacement Inspectors for Back Up:**

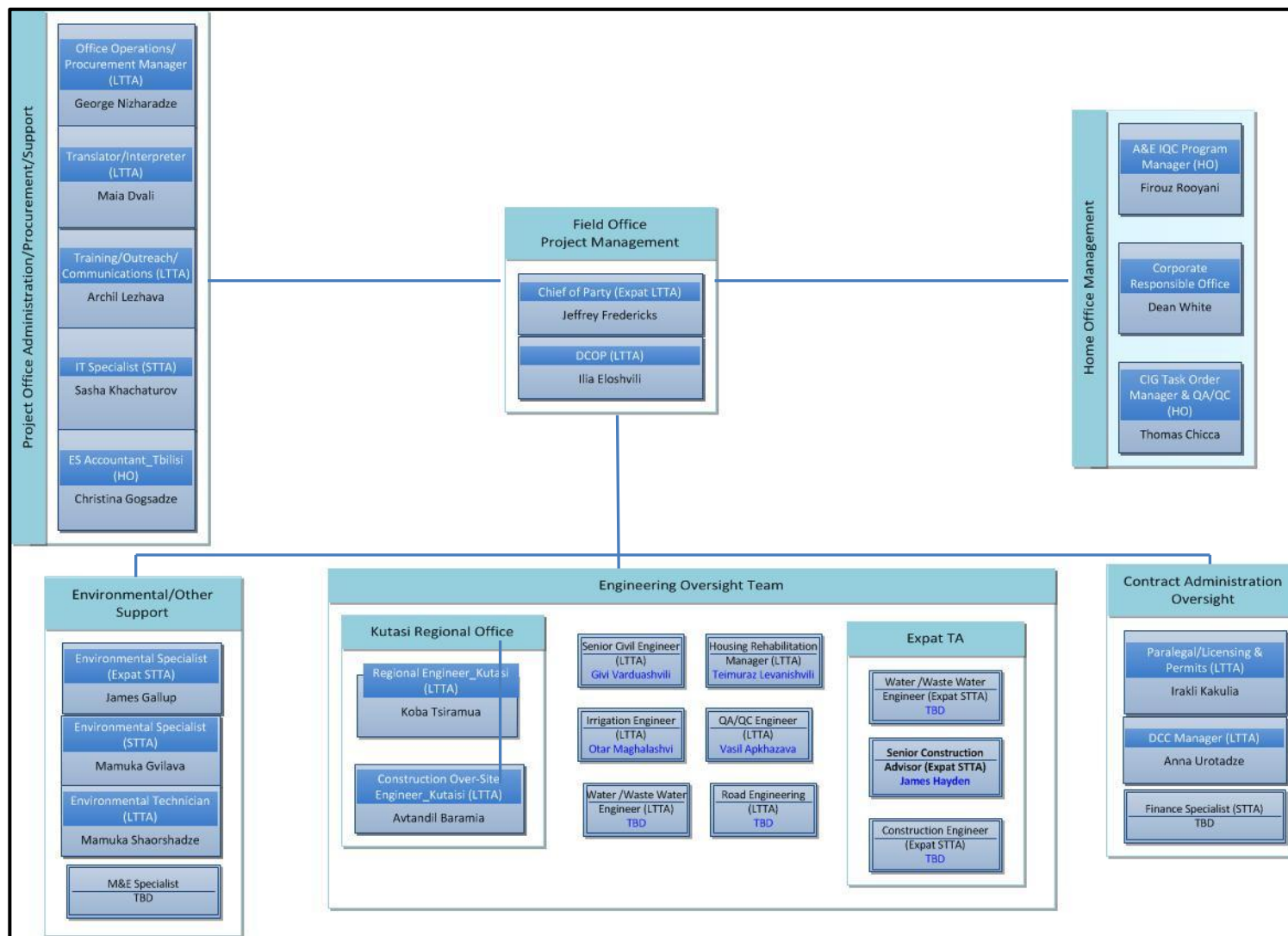
1. It is important to have inspection capability in the wings as close to ready to go as can be if MDF cannot meet their supervision obligations. To this end, consultants cannot however be engaged prior to knowing they will be needed so the best that can be done is pave the way for a quick procurement when and if it is needed.
2. Tt might consider issuing a Request for an Expression of Interest (RFEI) to consultant engineers immediately. The purpose of this would be to meet with engineering firms and discuss the program and CM and QC needs and get their ideas on how to do what is needed to ensure quality control during construction.

3. Tt should after this meeting draft up a RFP for MDF to issue that can be issued quickly. This will allow consultant to fill this gap as fast as it can be done which is probably 45 -60 days after issuing an RFP.
- b. Construction Contractor Relationship Building and Education
 - i. **MDF and Tt meetings with Contractor**
 1. This is important. MDF and Tt need to bring the contractor into this equation to provide acceptable quality control as a partner. Briefing up the contractor on what he will be expected to do is important. Letting him go out to the field after contract signing thinking that it is business as usual with MDF will result in miscommunications and loss of time while he reacts to that while he should be focusing on construction. Preparing him for a more rigorous inspection and quality requirement before he gets to the field will save time, prevent miscommunication and hard feelings and result in better quality early in the project. The better the contractor is prepared the less problems MDF and Tt will have once construction starts.
 2. Meeting issues to be discussed should be:
 - a. MDF more intense inspection and quality expectation
 - b. Contractor needs viable QC Plan of his own
 - c. Contractor needs real Safety Plan
 - d. Contractor schedules will be used to monitor his performance
 - e. So quality in all the above contractor out puts (QC Plan, Safety Plan and Schedules) will be important. If the Contractor needs help procuring these MDF and Tt need to find a way to assist.
 3. Handholding the Contractor during construction should be viewed as a capacity building effort. At the same time Tt needs to have MDF general agreement in doing this as MDF holds the construction contract.
 - ii. **Preconstruction Conference(s)**
 1. This meeting is crucial. While the meetings with the contractor as described above can begin prior to the preconstruction meeting, this meeting is where agreements about construction are made. The instructions for the preconstruction meeting provided will be useful in helping to make this meeting as successful as it needs to be.
2. **Tt GMIP Office Adjustments:**
 - a. Additional Tt staffing, space and vehicle requirements need to be planned in light of budget constraints. This is a Tt USAID discussion and agreement issue. However discussing this as an agenda item at the weekly meeting keeps the issue on the front burner and forces Tt and USAID to come to agreement on needs and resource allocation.

Attachment 5 – MDF GMIP Organizational Chart



Attachment 6 – Tetra Tech GMIP Organizational Chart



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